Region 7 Superfund Program
Site Addendum for the Generic QAPP for Superfund Site Assessment Activities (October 2012)

Project Information:

Site Name: *West Lake Landfill, MOD079900932*			**City:** *Bridgeton*	**State:** *MO*
EPA Project Manager: *Dan Gravatt*			**START Project Manager:** *NA*	
Approved By:	*NA*		**Prepared For:** *EPA Region 7 Superfund Division*	
Title:	START Project Manager	**Date:**		
Approved By:	*NA*			
Title:	START Project Manager	**Date:**	**Prepared By:** *Dan Gravatt*	
Approved By:	*NA*		**Date:** *July 3, 2013*	
Title:	START QA Manager	**Date:**		
Approved By:	**Dan Gravatt**			
Title:	EPA Project Manager	**Date:**	**START Contractor:** *NA*	
Approved By:			**START Project Number:** *NA*	
Title:	EPA Regional Quality Assurance Manager	**Date:**		

1.0 Project Management:

1.1 Distribution List

EPA--Region 7: *Dan Gravatt, James Johnson*
EPA Project Manager; EPA field sampler
Diane Harris
EPA RQAM

START: *NA*
Start Project Manager

1.2 Project/Task Organization

Dan Gravatt will serve as the Project Manager; OSC James Johnson will conduct the sampling activity.

1.3 Problem Definition/Background:

Description: This site-specific Quality Assurance Project Plan form is prepared as an addendum to the **Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: October 2012),** and contains site-specific data quality objectives for the sampling activities described herein.

EPA is attempting to characterize naturally occurring background levels of contaminants in the alluvial aquifer surrounding the West Lake Landfill in Bridgeton / Earth City, MO, adjacent to the Missouri river. Several homes and businesses are located approximately two to three miles north of the site and appear to have private water supply wells that will be sampled for VOCs and metals, as well as isotopic uranium, thorium and radium. Up to five of these wells will be sampled under this QAPP, subject to access being granted by the owners. These analyses are identical to those being used for samples collected at the site.

1.4 Project/Task Description:

CERCLA APA Report	CERCLA SI	Brownfields Assessment
● Other: Remedial Investigation support	Pre-CERCLIS Site Screening	Removal Assessment

Schedule: Field work is scheduled for *July, 2013*

1.5 Quality Objectives and Criteria for Measurement Data:

a. Accuracy: ■ Identified in attached table.
b. Precision: ■ Identified in attached table
c. Representativeness: ■ Identified in attached table.
d. Completeness: ■ Identified in attached table.
e. Comparability: ■ Identified in attached table.
Other Description:

*A completeness goal of 100 percent has been established for this project. However, if the completeness goal is not met, EPA may still be able to make site Decisions based on any or all of the remaining validated data.

1.6 Special Training/Certification Requirements:

■ OSHA 1910
Special Equipment/Instrument Operator (describe below): na.
Other (describe below): na.

1.7 Documentation and Records:

■ Field Sheets Site Log APA Report ■ Site Maps Video
■ Chain of Custody ■ Health and Safety Plan ■ Letter Report ■ Photos

Sample documentation will follow EPA Region 7 SOP 2420.5.

Other: Analytical information will be handled according to procedures identified in Table 2.

2.0 Measurement and Data Acquisition:

2.1 Sampling Process Design:

Random Sampling Transect Sampling ■ Biased/Judgmental Sampling Stratified Random Sampling
Search Sampling Systematic Grid Systematic Random Sampling Definitive Sampling
Screening w/o Definitive Confirmation Screening w/ Definitive Confirmation
sample

The proposed sampling scheme for groundwater from private wells will be biased/judgmental, with definitive laboratory analysis, in accordance with procedures included in OSWER Directive 9345.0-01A, "Guidance for Performing Preliminary Assessments Under CERCLA", dated September 1991, EPA/540/G-91/013; OSWER Directive 9345.1-05, "Guidance for Performing Site Inspections Under CERCLA", dated September 1992, EPA/540-R-92-021. Samples for VOCs and metals will be submitted for analysis to the EPA Region 7 laboratory; samples for isotopic U, Th and Ra will be submitted to TestAmerica labs in Earth City, MO. See the document referenced in Section 1.3 for additional site-specific information and maps. The proposed number of samples is deemed adequate for the purpose of characterizing background contaminant levels in the alluvial aquifer near the site.

Sample Summary Location	Matrix	# of Samples*	Analysis
Up to 5 domestic use private water supply wells.	*groundwater*	*Up to 5*	*LDL VOCs; metals; isotopic U, Th, and Ra*

*NOTE: QC samples are not included with these totals. See Table 1 for a complete sample summary.

2.2 Sample Methods Requirements:

Matrix	Sampling Method	EPA SOP(s)/Methods

Groundwater from private water supply wells	*Groundwater samples will be collected directly into sample containers from drinking water wells at spigots/faucets closest to the well heads. The samples will be collected into appropriate containers after the wells have been purged for a minimum of 5 minutes.*	*EPA SOPs 4230.1*

2.3 Sample Handling and Custody Requirements:

- ■ Samples will be packaged and preserved in accordance with procedures defined in Region 7 EPA SOP 2420.6.
- ■ COC will be maintained as directed by Region 7 EPA SOP 2420.4.
- ■ Samples will be accepted according to Region 7 EPA SOP 2420.1.

Other (Describe):

2.4 Analytical Methods Requirements:

- ■ Identified in attached table.
- ■ Identified in attached Analytical Services Request (ASR) Form

Other (Describe):

2.5 Quality Control Requirements:

Not Applicable

Identified in attached table.

- ■ In accordance with the ***Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated:*** **October 2012*).***

Describe QC Samples to be collected: *For this investigation, the trip QC sample will be one blank (water) prepared with DI water and provided by the EPA Region 7 laboratory. Extra volume will be collected for every 20th VOC sample taken.*

Other (Describe):

2.6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements :

Not Applicable

- ■ In accordance with the ***Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated: October 2012).***

Other (Describe):

2.7 Instrument Calibration and Frequency:

Not Applicable

- ■ Inspection/acceptance requirements are in accordance with the ***Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated:*** **October 2012*).***

Calibration of laboratory equipment will be performed as described in the previously referenced SOPs and/or manufacturers' recommendations.

Other (Describe):

2.8 Inspection/Acceptance Requirements for Supplies and Consumables:

Not Applicable

- ■ In accordance with the ***Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated:*** **October 2012*).***

All sample containers will meet EPA criteria for cleaning procedures for low-level chemical analysis. Sample containers will have Level II certifications provided by the manufacturer in accordance with pre-cleaning criteria established by EPA in *Specifications and Guidelines for Obtaining Contaminant-Free Containers.*

Other (Describe):

2.9 Data Acquisition Requirements:

Not Applicable

■ In accordance with the ***Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated:*** **October 2012*).***

Previous data/information pertaining to the site (including other analytical data, reports, photos, maps, etc., which are referenced in this QAPP) have been compiled by EPA and/or contractor(s) from other sources. Some of that data has not been verified by EPA and/or its contractor(s); however, the information will not be used for decision-making purposes by EPA without verification by an independent professional qualified to verify such data/information.

Other (Describe):

2.10 Data Management:

■ All laboratory data acquired will be managed in accordance with Region 7 EPA SOP 2410.1.

Other (Describe):

3.0 Assessment and Oversight:

3.1 Assessment and Response Actions:

Peer Review Management Review Field Audit Lab Audit

■ Assessment and response actions pertaining to analytical phases of the project are addressed in Region 7 EPA SOPs 2430.06 and 2430.12.

Other (Describe):

3.1A Corrective Action:

■ Corrective actions will be taken at the discretion of the EPA project manager, whenever there appear to be problems that could adversely affect data quality and/or resulting decisions affecting future response actions pertaining to the site.

Other (Describe):

3.2 Reports to Management:

Audit Report Data Validation Report Project Status Report None required

A letter report describing the sampling techniques, locations, problems encountered (with resolutions to those problems), and interpretation of analytical results will be prepared by START and submitted to the EPA.

Reports will be prepared in accordance with the ***Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated:*** **October 2012*)***.

■ Other (Describe): *A letter report or e-mail summarizing the fieldwork will be prepared by the sampler and submitted to the EPA project manager.*

4.0 Data Validation and Usability:

4.1 Data Review, Validation, and Verification Requirements:

Identified in attached table.

Data review and verification will be performed in accordance with the ***Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Program (Updated:* October 2012*).***

■ Data review and verification will be performed by a qualified analyst and the laboratory's section manager as described in Region 7 EPA SOPs 2430.06 and 2430.12. Data validation by TestAmerica will be performed as described in their laboratory SOPs and QAPP.

Other (Describe):

4.2 Validation and Verification Methods:

Identified in attached table.

■ The data will be validated in accordance with Region 7 EPA SOPs 2430.06 and 2430.12.

The EPA site manager will inspect the data to provide a final review. The EPA site manager will review the data, if applicable, for laboratory spikes and duplicates, laboratory blanks, and the field blank to ensure that they are acceptable. The EPA site manager will also compare the sample descriptions with the field sheets for consistency and will ensure that any anomalies in the data are appropriately documented.

Other (Describe):

4.3 Reconciliation with User Requirements:

Identified in attached table

■ If data quality indicators do not meet the project's requirements as outlined in this QAPP, the data may be discarded and re-sampling or re-analysis of the subject samples may be required by the EPA site manager.

Other (Describe):

Table 1: Sample Summary

Site Name: West Lake Landfill				**City:** *Bridgeton, MO*			
START Project Manager: *NA*				**Activity/ASR #: 6163**		**Date:** July, 2013	
No. of Samples	**Matrix**	**Location**	**Purpose**	**Depth or other Description**	**Requested Analysis**	**Sampling Method**	**Analytical Method/SOP**
Up to 5 samples	*Water*	*Private water supply wells*	*Assess background concentrations*	*NA*	*LDL VOCs; metals, isotopic U, Th, Ra*	*EPA SOP 4230.10*	*EPA SOP 3230.13D; 3122.3D; Test America SOP for U, Th, Ra*
				QC Samples			
				Trip Blank			
1	*Water*	*Trip blank*	*To assess field contamination*	*N/A*	*LDL VOCs*	*N/A*	*EPA SOP 3230.13D*

Note: this sampling activity will be concurrent with collection of on-site split samples; one trip blank will be collected for the combined set of samples.

Table 2: Data Quality Objective Summary								
Site Name: West Lake Landfill				**City:** *Bridgeton, MO*				
START Project Manager: *NA*				**Activity/ASR #:** 6163				**Date:** July, 2013
Analysis	**Analytical Method**	**Data Quality Measurements**					**Sample Handling Procedures**	**Data Management Procedures**
		Accuracy	**Precision**	**Representativeness**	**Completeness**	**Comparability**		
WATER (Groundwater, Drinking Water, and Surface Water)								
LDL VOCs; metals, isotopic U, Th, Ra	see Table 1	per analytical method	per analytical method	Biased/judgemental sampling based on professional judgement of the sampling team	100%; samples from private drinking water wells are considered critical samples	Standardized procedures for sample collection and analysis will be used	See Section 2.3 of QAPP	See Section 2.1 of QAPP form

Sampling Narrative

Introduction

Representatives of the United States Environmental Protection Agency (EPA) Region 7 will conduct sampling of private wells adjacent to the West Lake Landfill site in Bridgeton, MO.

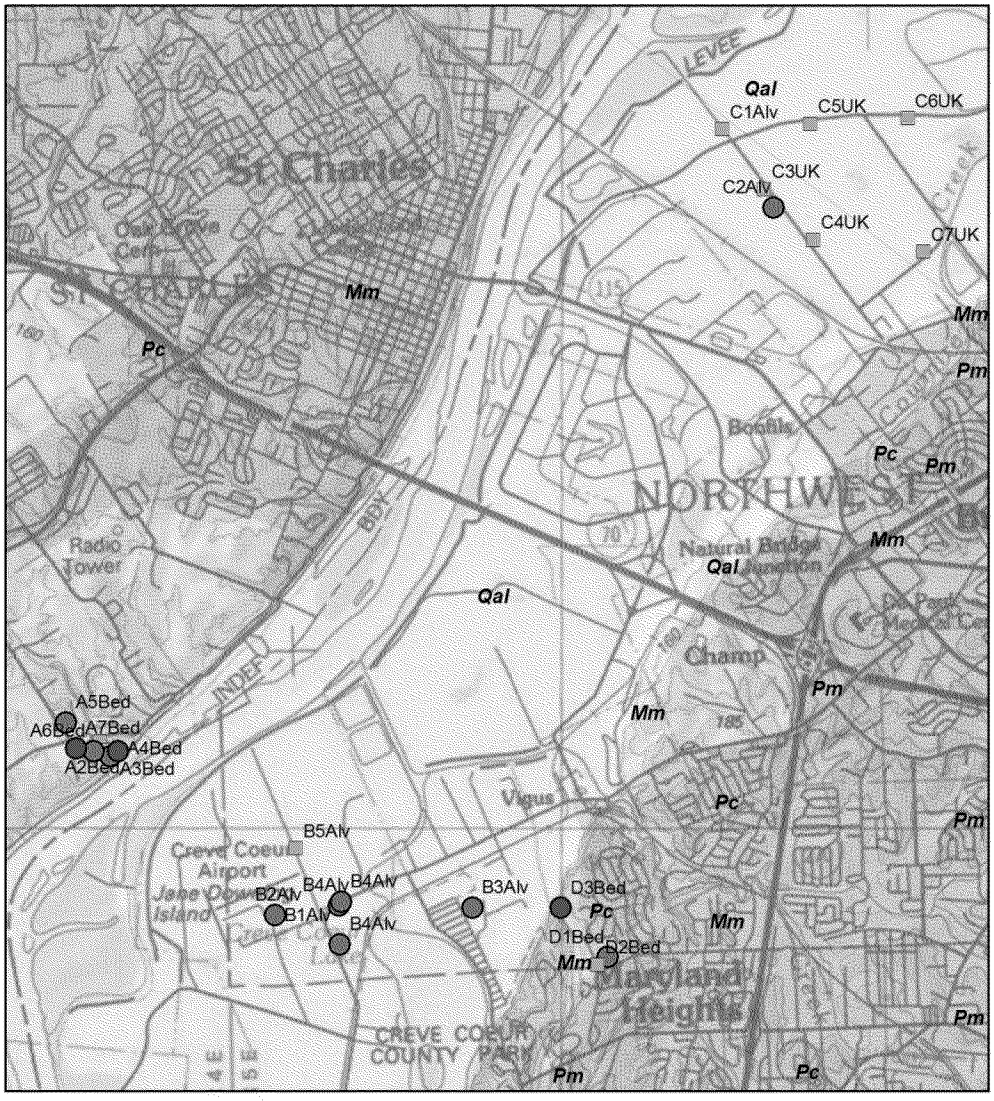
The purpose of the sampling is to determine background concentrations of contaminants in the alluvial aquifer near the site. The Quality Assurance Project Plan (QAPP) identifies the site-specific features and addresses elements of the sampling strategy and analytical methods proposed for this investigation.

Site Location

Bridgeton, MO.

Site Description

Contaminants have been found in the groundwater beneath the West Lake Landfill that can also occur naturally in geologic materials, including radium and arsenic. Nearby domestic use private water supply wells will be sampled to attempt to quantify naturally occurring levels of contaminants. The wells will be sampled for VOCs, metals and isotopic uranium, thorium and radium. EPA plans to sample up to 5 domestic use private water supply wells nearest the site. Below is a map showing the location of known or suspected wells near the site. The target wells for this QAPP are north of the site, labeled C3UK through C7UK, as well as C1Alv and C2 Alv.



Legend

usgs_june25_recon

- <all other values>

Permission

- NO
- UK
- YES

Below is a list of the targeted domestic use private water supply wells identified by USGS during their field reconnaissance June 25, 2013.

Field_ID	Fname	Lname	Address1	Address2		Phone	Lat	Long
C1	Bryan Riding Stables		13810	Missouri E	Bridgeton		38.79639	-90.4483
C2	Bluegrass	Buddy De	13852	Ferguson	Bridgetor	314-770-2828	38.78911	-90.4427
C3	Possible well			Ferguson	Bridgeton		38.79083	-90.4436
C4	Possible well			Ferguson	Bridgeton		38.78611	-90.4381
C5	Possible well			Missouri E	Bridgeton		38.79667	-90.4381
C6	Possible well			Missouri E	Bridgeton		38.79694	-90.4267
C7	Possible well			Prouhet F	Bridgeton		38.78472	-90.4253

Previous Investigations

No off-site wells have been sampled previously.

Sampling Strategy and Methodology

The groundwater samples from the wells will be collected from taps/spigots located nearest the wellhead and prior to any in-home water treatment system. The lines at the active wells will be purged for at least 5 minutes prior to sample collection. Any wells not currently in use will be purged for at least 15 minutes prior to sample collection. Water quality parameters (pH, conductivity, and temperature) will not be collected or recorded.

A field sheet will be completed for each groundwater sample location. The field sheets will include the following information: sample date, sample time, purge time, estimated purge volume, property ownership information, sample location description, GPS coordinates, analyses to be performed, depth of well, well completion interval, and a description of any water treatment system. The groundwater samples will be submitted to the EPA Region 7 laboratory for analysis of LDL VOCs and metals, and to TestAmerica in Earth City for isotopic U, Th and Ra. Water samples collected for LDL VOC analysis purposes will be collected in 40ml vials, preserved with HCl to a pH of less than 2, placed in a 1L cubitainer containing a carbon thimble, and cooled to 4 degrees celsius. Water samples for metals will be collected in a 1L cubitainer, preserved with HNO3 and cooled to 4 degrees celsius. Water samples for isotopic U, Th and Ra will be collected into pre-preserved 1L bottles provided by TestAmerica; no cooling is required.

Quality Control Samples

To evaluate sample quality control, a trip blank will be prepared as specified in Section 2.5 of the QAPP Form. Extra volume will be collected on each 20th VOC sample taken for lab QC purposes. Note that this sampling activity will be concurrent with collection of twelve (12) on-site split samples; one trip blank and one extra-volume sample will be collected for the combined set of samples.

Analytical Methods

All samples for LDL VOCs and metals will be submitted to the EPA Region 7 laboratory in Kansas City, Kansas for analysis. Samples for isotopic U, Th and Ra will be delivered to TestAmerica Labs in Earth City, MO. All samples will be analyzed according to SOPs and methods referenced on the QAPP Form. Standard detection limits for those methods will be adequate for this project. Appropriate containers and physical/chemical preservation techniques will be employed during the field activities. An Analytical Services Request Form (#6163) and Sampling Supplies Request Form has been provided to the EPA Region 7 laboratory. Submittal of samples to the laboratory is expected the week of July 8, 2013.